

# Datasheet

## SPRINT-Nav Mini



SPRINT-Nav Mini 300 m



SPRINT-Nav Mini 4,000 m

### Description

SPRINT-Nav Mini is the world's smallest hybrid acoustic-inertial navigator. Built on years of experience with the SPRINT-Nav, it is designed to provide precise and robust orientation, velocity, altitude and depth updates for unmanned maritime systems, remotely operated vehicles and manned submersibles.

The SPRINT-Nav Mini combines carefully selected inertial sensors, a Syrinx Mini Doppler velocity log (DVL) and a high accuracy pressure sensor into a single housing and is optimised for size, weight and power consumption. It replaces separate attitude heading reference system (AHRS), DVL and depth sensors. Like all SPRINT-Nav products, the SPRINT-Nav Mini uses information from all the sensors optimally to provide seamless operation and unprecedented levels of performance compared with standalone instruments.

SPRINT-Nav Mini comprises highly accurate gyroscopes and accelerometers which are not affected by magnetism and provides a true north seeking gyrocompass. Tight integration with the DVL and pressure sensor enables

SPRINT-Nav Mini to provide velocity, depth and altitude which is free from noise and immune to short term DVL acoustic outages. Being able to provide these messages, including quality metrics, at a constant output rate of up to 200 Hz drastically improves vehicle control.

SPRINT-Nav Mini is supplied with two connectors making retrofitting into existing control systems simple.

The compact form factor is significantly smaller and lighter than any other combination providing orientation, velocity, altitude and depth information available in the market.

The unit comes pre-calibrated and requires no additional calibration offering minimal operational complexity.

The SPRINT-Nav Mini provides a single message containing all the information typically required for vehicle guidance and control reducing complexity of integration and operation.

It offers an easy to use Web UI which provides an intuitive dashboard viewer as well as configuration and detailed status pages for integration and troubleshooting.

### Applications

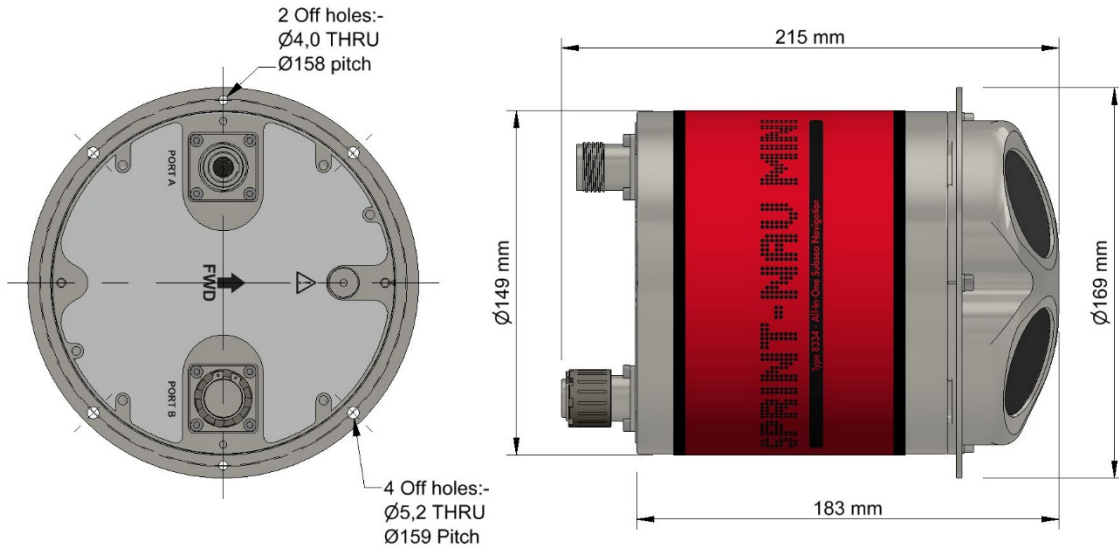
- Ideal for observation-class ROVs, light work-class ROVs, USVs, manned submersibles and diver navigation boards
- Ideally suited for ROV control and guidance
- True North seeking

### Features

- World's smallest hybrid acoustic-inertial navigator
- Minimal sensitivity to vehicle dynamics or wave motion
- All-in-one turn-key solution
- Highly optimised size, weight and power
- 300 m and 4,000 m variants
- Concurrent orientation, velocity, altitude and depth output
- Fixed frequency, continuous and robust vehicle control and guidance outputs
- Factory calibrated
- 500 kHz DVL
- 0.3–200 m bottom track operating altitude
- Intuitive Web UI
- Export is not ITAR controlled

# Specifications

## SPRINT-Nav Mini



SPRINT-Nav Mini 4,000 Shown Above

Performance	Type 8334-0712 (300 m)	Type 8334-4512 (4,000 m)
Heading Accuracy <sup>1</sup>		0.5° (sec lat)
Pitch Roll Accuracy <sup>1</sup>		0.1°
Angular Rate Range		±450°/s
Angular Rate Precision <sup>1</sup>		<0.01°/s
Velocity Precision <sup>1,2</sup> (<2 m/s at 50 m altitude)		<0.4 cm/s
Altitude Range		0.3 m to 200 m
Altitude Precision <sup>1,2</sup>		<1 cm
Altitude Accuracy <sup>1</sup>		<1%
Depth Range		0 to 4000 m
Depth Precision <sup>1,2</sup>		<0.2 cm
Depth Accuracy <sup>1</sup>		0.1% FS
<b>Power</b>		
Power Requirements	24 V dc, 10 W nominal	
<b>Physical / Comms</b>		
Interface	Ethernet Serial Trigger	UDP/TCP, WebUI 3x RS232 2 x trigger inputs (1PPS/DVL trigger) 200 Hz (user selectable)
Data output rate		200 Hz (user selectable)
Construction	POM-C	Titanium
Housing Diameter x Height (including connectors)	Ø149 x 215 mm	Ø149 x 215 mm
Weight Air/Water <sup>3</sup>	3.6/0.7 kg	7.1/4.2 kg
<b>Environmental</b>		
Depth Rating	300 m	4,000 m
Operating Temperature	-5 to 50°C	
Storage Temperature	-25 to 55°C	

<sup>1</sup> Standard Deviation

<sup>2</sup> Precision/noise, dynamic performance, robust configurable rate enhanced or enabled by hybrid integration

<sup>3</sup> Estimated Weights